Preparation and Evaluation of Herbal Lip Balm

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Abstract
Lip balm is the one of regularly use cosmetics item. Lip balm is a waxy substance that is applied to the lips to keep them moisturized. The lip balm was developed to protect the lips from external influences such as the winter cold and to prevent dry and chapped lips. The lip balm prevents irritation and infection to lips. It also reduces the pain associated with chapped lips. The ingredients used in making the lip balm moisturize the lips and help heal chapped lips. Unlike lipstick, lip balm is not gender specific. Most of them have a waxy texture. A lip balm is a moisturizer that is applied to the lips to keep them from drying out and to protect the lips from environmental influences. Use of herbal ingredients in lip balm decreases the negative effects.

Keywords: Lip Balm, Herbal, Cosmetics, Moisturizer

Introduction

Cosmetics play an important role in today's lifestyle. Furthermore, the current trend is to go green in most industries, including cosmetics, towards a more natural lifestyle. Better options are natural foods, herbal medicines and natural cures for healthy living. There is also strong demand for organic plant products. The use of herbal cosmetics has been increased many times in the personal care system. Natural products have been used for traditional medicinal purposes around the world for thousands of years. Many of them have pharmacological properties such as antibacterial, anti-inflammatory and cytostatic effects. They have been recognized as useful for human medicine [1].

Plant extracts are grown worldwide and are a leading name in the field of horticulture. Cosmetics made from plant extracts for skin and hair care are very popular because of their reliability. Herbal cosmetics include various formulations. Herbal words show safety compared to synthetic products with many side effects on human health. Lipstick is an age-old method to enhance the beauty of the lips and add charm to the makeup on the face. For this, the choice of color shades, textures and lighting has been revised and expanded. This can be observed Jelly lipsticks, lip balms, lipsticks are marketed with hundreds of Colors to meet the needs. Herbal cosmetics include valuable biological active ingredients for the skin and improve the biological function of the skin by providing useful nutrients. Herbal medicines from

traditional cultures are gaining popularity as a natural alternative to synthetic chemicals. Nowadays, cosmetics play a very important role in today's lifestyle. Organic products have natural properties that can benefit both consumers and the environment. In contrast, lip tinting is an ancient method to enhance the natural features of the lips and also to create charm. IN this modern era, the use of organic lip balm has been increased in the personal care system. Meanwhile, according to Chattopadhyay, lipstick is an ancient method to enhance the beauty of the lips. For this, the choice of shades of colors, textures, fragrances has been revised and expanded over the years [2].

In addition, cosmetic companies hire specialized teams of scientists to develop and test each new line of makeup, fragrances, lotions, soaps, and more. Lip balms are formulated to be applied to the lips to prevent dryness and protect against various environmental factors. To create a lip balm formula, it is necessary to balance the concentration of key ingredients including butters, oils and waxes for the final product to work and apply. The beauty of lips can be enhanced by Lip Color, it also enhances the overall charm of the face. Various makeup and lip care products mainly include lipstick, lip balm, lip balm. The main role of lip care products is to create attractiveness, moisturize, protect lips from harmful UV rays, etc. The skin on the lips is thin and different from other parts of the body. It has no hair follicles, sebaceous glands and sweat. It lacks an inherent mechanism to retain moisture and protect from the external environment. Therefore, the lips of need more care, protection and moisture retention. Poor quality products can cause dryness and pigmentation or discoloration of the lips. Especially some ingredients like phenol or menthol are harmful to the lips [3].

Lip Balm

Lip balm is a waxy substance applied to the lips to keep them moist. Lip balm was created to protect the lips from external influences such as the cold of winter and prevent dry, chapped lips. Protecting the lips helps prevent irritation and infection. Occlusive Lip Balm Prevents saliva from wetting the skin repeatedly. It also reduces the pain associated with chapped lips. The ingredients used to prepare the lip balm maintain the moisture of the lips and promote the healing of chapped lips. Unlike lipstick, lip balm is not gender-specific. Most of them have a waxy texture.

The minimum consumer expectation for lip balm is to form a thin film on the lips. Therefore, the preparation of the recipe is a less complicated task. It is recommended to apply lip balm on the lip line before applying matte lipstick because the balm helps to fix the lipstick in place. It's cheaper than lipstick. Lip balm is a moisturizer applied to the lips to keep the lips from drying out and to protect the lips from environmental factors. Although the same applies to lipstick because it is a cosmetic form that closely resembles lip balm, the cosmetic literature has very little data on this type of formulation (in stick form). Lip balm and lip gloss are not interchangeable, the former being a product that can be used by both men and women. Fatty acids, such as waxes, oils, and butters, are the main ingredients of lipsticks, giving them their consistency and acting as emollients. Castor oil, beeswax, carnauba wax, candelilla wax, paraffin, and cocoa butter are some of the most common. However, there are a few key differences between lipstick and lip balm, especially in terms of function: lipstick serves to color the lips, while lip balm protects them. In addition, lipstick formulations are more complex than lip balm formulations due to the increasing number of ingredients.

To make a lip balm, the concentrations of key ingredients, such as butter, oils and waxes, must be balanced so that the final product has a melting point of 65-75° C. Formula will have different quality

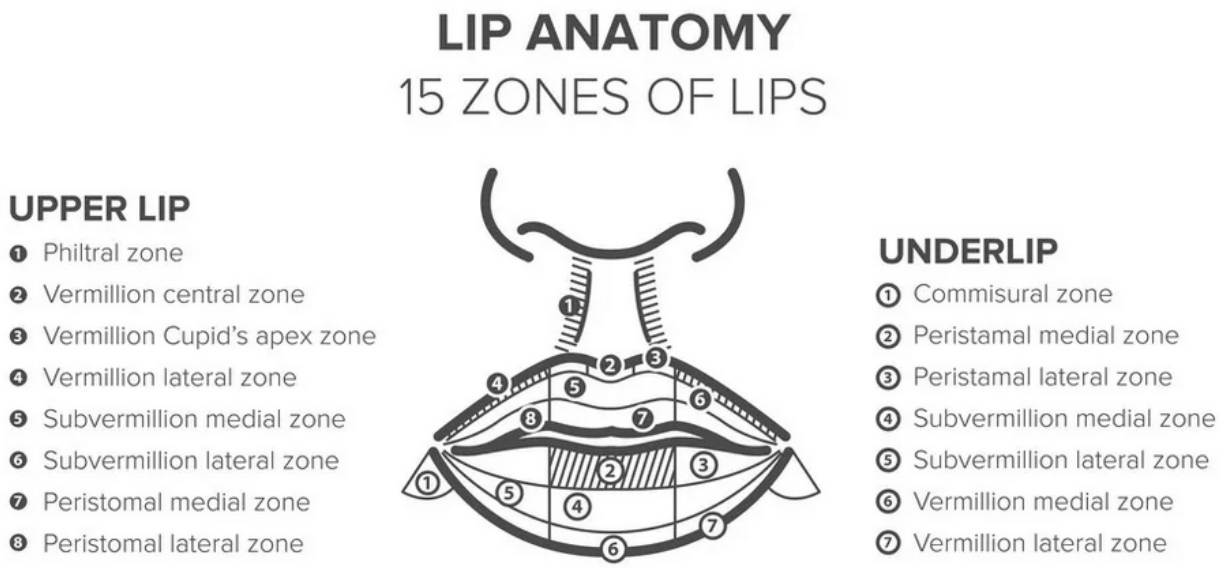
depending on wax, oil, ratio and color. A high proportion of waxes and pigments can be used to create a long-wearing product, while the opposite can result in a smoother lipstick or lip balm. The chemicals in lip balm formulations can adversely affect softness and breaking point, which are two distinct characteristics. There can exist two formulations with the same melting point but different consistency. It can take a lot of effort to overcome these problems. For a formula to have the proper melting, softening and breaking points, a balance must be achieved between the ingredients [4].

Anatomy of Lips

The 5 main areas are vermilion/white roll, subvermilion, peristomal, philtral column and commissure. The subcutaneous part corresponds to the dry mucosal lip and the peristalsis corresponds to the junction of the dry and wet mucosal lips. The vermilion/white roll can be split on the upper lip to include the lateral and apex areas of the cupid and the central filter areas, while the vermilion lower lip is divided into the middle and beside. The subvermillion is divided into medial and lateral regions, and the peristalsis into medial and lateral regions. Lips: The surface of the lips consists of four areas: hairy skin, vermilion rim, vermilion mucosa, and cheeks.

The normal shape of the lips changes with age and is strongly influenced by ethnicity.

Figure 1: Anatomy of Lip [6]



Vermilion: The red part of the lips. It is covered by a specialized stratified squamous epithelium. **Cisconium border:** The border of the lighter skin separates the vermilion from the surrounding skin. **Cupid's bow:** the border formed by the vermilion edge of the upper lip. **Mouth:** The opening is limited by the upper and lower cinnabar. **Corner of the mouth:** The meeting place of the sides of the upper and lower lips. The upper and lower lips contain mucous membranes, vermilion, and skin surfaces. This article provides a brief overview of the anatomy, neurovascular, and musculoskeletal systems of the lip, as well as important clinical and surgical considerations related to lip pathology. While lip considerations typically focus on the vermilion area, the upper lip extends from the nasolabial fold to the lower edge of the nose, and the lower lip includes the area between the lateral margins and the inner lip crease of the chin.

The upper and lower lips that meet at the corner of the mouth are called lip intersection. It is the point at which several muscles involved in lip movement attach to the lateral and lower lip subunits, 1 subunit. The skin and mucosal parts of the lips joined at a vermilion with variable protrusions are known as white coils. The main areas are the vermilion/white, subvermilion, peristomal, philtral column and commissure rollers. The edges of the lips are covered with a red skin, sometimes called the vermilion border, and are filled with sensitive nerve endings. The reddish-pink skin is the transition layer between the outer hair tissue and the inner mucosa. The inner surface of the lips is lined with a moist mucous membrane. In infants, the inner surface is much thicker, with sebaceous glands and small papillae called papillae. These structural adaptations appear to facilitate the aspiration process.

Most of the substance of each lip is supplied by the orbicularis oris muscle, which surrounds the opening. This and others radiate to the cheeks allowing for many variations in the shape and expression of the lips. The lips are the organs of pretense, desire, and speech. The skin, superficial fascia, ciliary sphincter, and the muscles surrounding it form this structure (areola tissue and mucous membrane).A dry, red mucous membrane covers the edges of the lips, is continuous with the skin and contains many vascular papillae and tactile corpuscles. Internally, the mucosa reflects from the upper and lower lips to the gums, forming two upper and lower folds in the midline [5].

Lip Disorders

Swelling

Allergic reactions can cause lips to swell. Reactions can be caused by sensitivities to certain foods or beverages, medications, lipsticks, or airborne irritants. When a cause can be identified and then eliminated, the lips usually return to normal. But often the cause of swelling remains a mystery. A condition called hereditary angioedema can cause recurrent episodes of swelling. Non-genetic conditions such as erythema multiform, sunburn, cold weather, dryness, or trauma can also cause lip swelling [7].

Sun Damage

Sun damage can cause the lips, especially the lower lip, to become dry. Thin-looking red or white spots signal damage that increases your risk of cancer later in life. This type of damage can be reduced by covering the lips with a lip balm that contains sunscreen or by protecting the face from the sun’s harmful rays with a wide-brimmed hat.

Inflammation

When the lips become inflamed (cheilitis), the corners of the mouth may become painful, burning, red, cracked, and scaly. Cheilitis can be caused by a lack of vitamin B2 in the diet [7].

Discoloration

Freckles and irregularly shaped brown areas (melanomas) are common around the lips and can persist for years. These signs are not cause for concern. Many small scattered dark brown spots can be a sign of an inherited condition called Peutz-Jeghers syndrome, in which polyps form in the stomach and intestines. Kawasaki disease, a disease of unknown cause that often occurs in infants and children 8 years of age and younger, can cause dry, cracked lips and redness of the lining of the mouth.

Sores

A raised area or hard sore on the lip May be a form of skin cancer. Other sores can develop as symptoms of other medical conditions, such as an infection with the herpes simplex virus of the mouth or syphilis. Still others, such as keratoacanthoma, have no known cause [7].

Lip balms are formulated to be applied to the lips to prevent dryness and protect them from environmental aggressors. Currently on the market there are many types of chemical lip balms from brands such as the body shop, Nivea, Himalaya, Blistex, etc. The cosmetic literature reports limited data on this type of formulation, although references to lipstick apply as it is a cosmetic form similar to lip balm. Lip balm should not be considered the equivalent of lip gloss, the former being a product for both men and women. Lips contain melanin, which helps protect the skin from the sun's harmful rays. But then the use of ingredients like ghee, honey, vitamin E, etc. keep lips hydrated for a long time.

Beeswax is based on formulations obtained from natural origin, mainly acting as a natural emulsifier, sesame oil is used as a remedy for burning sensations, nourishes tissues and facilitates favorable to the cleaning process, protecting against UV rays, sesame oil is also one of the substances currently used to treat burns; It has shown different effects in wound healing. Sesame oil has been reported to be effective in lowering cholesterol and blood sugar levels and it has antioxidant effects. Olive oil was studied in for its antioxidant effects and was found to have beneficial effects on cardiovascular diseases and cancer [4].

In traditional medicine, olive oil is considered to have a healing effect on the skin; however, this issue has not been studied in advanced medicine. Unfortunately, very little research has been done on sesame oil, olive oil and their effects on wound healing, while some studies suggest beneficial effects. However, the effects of honey have been studied in animals and humans. Combining honey with olive and sesame oils may increase their beneficial effects on wound healing. IN addition, this combination can reduce the penetration of bacteria into the wound; however, no studies have been done to test this idea.

Advantages of Lip Balm [8-9]

Lip balm helps protect the health and natural beauty of the lips.

1. Sunscreen lip balm has been shown to block UV damage to the lips.
2. They are not gender-specific products and can be used by both men and women.
3. Lip balm helps protect sore, chapped and dry lips.
4. The product in contact with the skin should not cause friction or dryness, and must form an even layer on the lips to protect the lip lining which is sensitive to environmental factors such as UV rays, drought and pollution.
5. It refreshes, refreshes and also treats lip related symptoms caused by colds, flu and allergies.
6. The use of natural lip cosmetics to treat skin appearance and condition.

Common Ingredients used in Natural Lip Balm Formulation

The list of materials used as key formulation ingredients for Natural lip balm given in the Table no.1 as described below.

Table 1: List of Natural Ingredients [10-15]

Base	Oils	Colouring Agent	Flavouring Agent
Cocca butter	Coconut oil	Beetroot	Strawberry

Beeswax	Olive oil	Pomegranate	Honey
Shea wax	Almond oil	Marigold	Orange
Shea Butter	Vitamin E oil	Tomato	Kesar
White bees wax	Peanut oil	Jabul	Raspberry
Yellow bees wax	Tea tree oil	Watermelon	Vanilla
Carnuba wax	Glycerine	Honey	Mangoe
Candelilla wax	Castor oil	Saffron	Rose oil
Mango butter	Jojoba oil	Turmeric	Sandalwood
Avocado butter	Corn oil	Capsicum	Jasmin
Olive butter	Arachis oil	Cherry	Cherry
Jojoba wax	Lemon oil	Orange	Apple
Olive butter	Avocado oil	Strawberry	Lemon
Sweat almond butter	Sesame oil	Mango	Apricot
Sweat almond wax	Sunflower oil	Carrot	Rosemary
Raspberry butter	Grape seed oil	Lemon	Pineapple

Base

Waxes form an important group of raw materials for the manufacture of personal care products and decorative cosmetics. Waxes are used in various industries and products. They are mainly used in candles, but also have important applications in the food, cosmetic and pharmaceutical industries as thickeners/emulsifiers. Chemically, wax is a complex mixture of hydrocarbons and fatty acids bonded to esters. Waxes are harder, less greasy, and more brittle than grease. They are highly resistant to moisture, oxidation and bacteria. There are four types of waxes:

(a) Animal waxes: beeswax, lanolin, and sperm;
(b) Vegetable waxes: Carnauba, candelilla, jojoba;
(c) Mineral waxes: ozokerite, paraffin, microcrystalline, ceresin;
(d) Synthetic waxes: Polyethylene, carbowax, Acrawax, stearon.

The waxes most used for cosmetic products are beeswax, carnauba and candelilla. Waxes are esters of fatty acids and fatty alcohols. Therefore, jojoba oil is a wax, not an oil. Physically, wax has a high melting point (50-100° C). The most used wax is beeswax, which is a good emollient and thickener. Two other natural waxes commonly used in cosmetics are carnauba wax and candelilla wax. Both are harder and have higher melting points, making them more stable and suitable for dry goods, for example: lip balm [10].

Cocoa butter is a natural fat found in cocoa beans and gives lip balm its smoothness. It will nourish and moisturize lips, and help heal chapped and dry lips as it contains antioxidants. Another important and useful ingredient of lip balm is white beeswax with a melting point of 62-64° C. It is useful for bonding oils and waxes with high melting points. It is used in 3-10% of total formulations. It shrinks on cooling and thus facilitates the preparation of molded products. At concentrations above, it creates a dull appearance and causes the balm to crumble during application. Candelilla wax has a melting point of 65-69° C and can be used in 5-10% of formulations. Candelilla and beeswax mixtures are great for making

lip balms. If camellia wax is used a little more than beeswax, the product will have a smooth and shiny appearance. On the other hand, carnauba wax increases the melting point of the foundation and hardens the lip balm, so it is used in very small amounts. It gives the product an attractive gloss [11].

Oils

Oils and fats differ in physical form; this is usually a solid at room temperature. Fats and oils are glycerol esters chemically made up of glycerol and fatty acids and are also known as triglycerides. Fatty acids can be saturated or unsaturated, thus determining the stability and character of the oil. Oils that are high in saturated fatty acids (lauric, myristic, palmitic, and stearic acids) include coconut oil, cottonseed oil, and palm oil. Oils with a high degrees of unsaturated fatty acids (oleic, arachidonic, linoleic acids) are canola oil, olive oil, corn oil, almond oil, safflower oil, castor oil, and avocado oil.Saturated oils are more stable and do not go rancid as quickly as unsaturated oils. However, unsaturated oils are smoother, more valuable, less greasy, and better absorbed by the skin. Natural butters such as shea butter, avocado butter or cocoa butter are not real butter but natural fats.

In general, natural butters are excellent emollients and thickeners, and depending on the type, they can have various additional properties (e.g., antioxidant and soothing properties of shea and avocado butter due to phenolic compounds).The oil mixture must mix properly with the wax to form a suitable film on the skin of the lips being applied. The ideal blend is one that allows the product to spread easily and creates a thin film with good coverage. Sunflower or olive oil, both of which give excellent shine to the lips Castor oil is used in many lip balms due to its good qualities, although today people use other oils or solvents. Refined quality castor oil has a beautiful color, is odorless and tasteless. Castor oil is a very good plasticizer. An antioxidant must be added to castor oil to prevent rancidity although it does not go rancid as easily as other vegetable oils such as olive or almond oil.

Jojoba oil is known for its emollient properties that can prevent lips from becoming dehydrated. While goji berry oil is well known for its moisturizing and skin conditioning properties. Rosehip oil is excellent for maintaining the skin's natural moisture balance. Vitamin E is a well-known antioxidant that plays an important role in the base of lip balms. Peppermint essential oil invigorates and revitalizes the skin. Cinnamon essential oil is an excellent antioxidant. Lavender essential oil soothes and nourishes the skin. And Grapefruit essential oil is soothing and refreshing for dry lips. Almond oil is a pale yellow oil with a mild characteristic odor. It is composed of mainly oleic acid glycerides with small amounts of other acids, namely linoleic, myristic and palmitic. It has emollient properties [12].

Coloring Agents

Dyes or colorants are mainly used to give cosmetic products a distinct appearance. Color has been used in cosmetics since ancient times. Basically, the desire to buy a cosmetic product is controlled by the three senses of sight, touch and smell. As such, color is an important ingredient in cosmetic formulations. Color is provided to the lips in two ways; years. By tanning the skin with a dye that penetrates the outer skin of the lips, b. By coating the lips with a layer of color that helps cover any roughness on the skin and gives a smooth appearance. The first requirement is met by soluble dyes and the second requirement is met by insoluble dyes and pigments making the film more or less opaque. Modern lip balms contain both for a combined effect [13].

Colorants must be on the list of certified colorants under the Drugs and Cosmetics Act. Natural colors from various plant and fruit sources. Colorants of natural origin are non-toxic and have no physiological

activity. It has to be a certain chemical compound because then only its coloring can be trusted, its dosing will be more practical and easy. Its tinctorial (dyes) strength should be high enough that only a small amount of is sufficient to use. The dye must be insensitive to light, temperature, hydrolysis and micro-organisms and must therefore be stored stably. Dyes must not be affected by oxidizing or reducing agents and pH changes, nor should they interfere with tests and assays.

Water-soluble colorants are also preferred along with oil- and alcohol-soluble colors. The most important feature of colorants is compatibility with other ingredients and drugs. It must not have the unpleasant taste and smell of cashmere wool, and must be readily available and inexpensive. Examples of natural dyes obtained from beetroot, saffron, turmeric, etc. Saffron is the dried pistil of the Cross Sativuslinne plant. It is a perennial plant and is grown in Kashmir in India. It is also grown in Spain, France, Greece and Iran. The main coloring agent in saffron is crocin. Crocin is a yellow powder, is a glycoside in nature and is readily soluble in water [14].

Flavouring Agent

Flavors or flavoring agents are generally needed to mask the four basic taste sensations. Taste refers to a mixed sensation of taste, touch, smell, sight, and hearing, all of which involve a combination of physicochemical and physiological actions that affect the perception of food. Substances. With the expansion of technology in the flavor industry, many artificial or fake flavors have been created. Creating an acceptable taste is more of an art than a science. Flavors are selected based on the flavor of the drug or other ingredients incorporated. Mask flavor vs different flavor. Fragrances used in lip balms must not contain any ingredients that could be irritating or toxic. These should be delicious and be able to mask the greasy smell of the base.

Flavoring agents are an essential ingredient in masking the smell of oils or waxes as well as creating an appealing taste. They are commonly used in the concentration range of 2-4% of the total formulation. The flavor should be stable and compatible with the other ingredients of the lip balm. The flavors should not be so strong that they conflict or overwhelm other flavors that can be used with lip balm. Fruity flavored perfumes have also been advocated. Also something edible can be used. Commonly used flavors are apricot, strawberry, raspberry, cherry, honey, etc. Honey has the ability to serve as a natural food preservative [15].

Formula for Lip Balm

Sr. No.	Ingredients	Quantity (%)
1	Cocca butter	18%
2	Bees wax	27%
3	Coconut oil	36%
4	Alove vera	18%
5	Almond oil	1%
6	Flavour (Strawberry)	q.s
7	Perfume	q.s

- **Beeswax:** Beeswax is used in lip balms, lip glosses, hand creams, ointments, and moisturizers. and in cosmetics such as eyeshadow, blush and eyeliner. Beeswax is also an important ingredient in mustache and hair waxes, making hair smooth and shiny. Typically, beeswax is used in makeup products because it is a natural emulsifier, allowing liquid and oily makeup ingredients to bind and hold. It increases the thickness of solid products like lipstick, giving them structure, and the keeps them solid for smooth application.
- **Cocoa Butter:** Cocoa butter is an emollient and an excellent source of natural antioxidants. It adds a moisturizing protective layer to the lips, helping to protect them from extremes and indoor temperatures that can dry out your lips. Cocoa butter melts at skin temperature, making it the ingredient of choice in many skin care products, including scrubs, lotions, and soaps. Cocoa butter lipstick is the perfect lip balm.
- **Coconut Oil:** The moisturizing and emollient properties of coconut oil make it potentially helpful in soothing dry, chapped lips. It is commonly used in lip balms, other lip products, and many other beauty and self-care products. It absorbs quickly and leaves skin soft and radiant. In particular, as a lip balm, it replenishes moisture and helps hydrate dry skin. If your lips are chapped, adding coconut oil to your lip care routine will help moisturize and maintain their softness.
- You could use aloe by itself as a lip balm, but it's best to mix it with other ingredients so that it stays put. Aloe's slippery consistency means that it is absorbed quickly and easily by your skin, but it won't stay on your lips to protect against the elements. Aloe vera contains 6 antiseptic agents: Lupeol, salicylic acid, urea nitrogen, cinnamonic acid, phenols and sulfur. They all have inhibitory action on fungi, bacteria and viruses.

Extraction Process of Alove Vera

- Wash aloe vera leaf and measure the length.
- Divide and cut the leaf into 3 sections and obtain overall weight.
- Remove the rinds and weigh the aloe gel.
- Grinds for 1 minute.
- Save in refrigerator (4° C to 5° C)

Method of Lip Balm Preparation

The production technology of lip balm includes the following steps [7]:

- Raw materials are quality tested (cosmetics must meet strict safety standards)
- Ingredients are dosed, cooked melt, blend (this is related to specific equipment and installation steps)
- This mixture is processed in a vacuum (this is the lipstick separation step)
- The mixture is crystallizes (takes about 48 hours)
- The mixture is melted
- The mixture is shaped (cut into pieces of the desired shape)
- It is packaged (the lipstick is packaged in a box) [16-17].

Evaluation Parameters

Organoleptic Properties

The formulation was studied for physical Appearance, colour and odour. These Characteristics were evaluated by physical Observation. Texture and homogeneity were tested by pressing a small quantity of the Formulation between the thumb and index finger. The presence of coarse particles and Consistency

were used to evaluate the texture and homogeneity of the formulations. Skin feel (including stiffness, greasiness, and grittiness) was also evaluated.

a. Texture

The formula lip balm sample is placed on the base of the AMETEK Brookfield CT-3 Texture Analyzer. Cylindrical probe (TA39) has been attached to the force sensor as it is the most suitable probe for cosmetics.

b. Color

Lip balm color analysis was evaluated using a Konica Minolta CR-400 chromometer. This chromatograph has three readings that contribute to the brightness, redness and yellowness of the sample being examined.

c. Greasiness

The oil test was reviewed to determine the amount of oil in a formulated lip balm. In this study, 4 gram of lip balm was placed on filter paper and the sample was left at room temperature for 24 hours.

pH

One gram of the preparation is dispersed in 25 ml of distilled water. The pH of the preparation was determined using a pH meter (Mettler Toledo) pre-calibrated with standard buffer solutions (pH 4, 7 and 10). The measurement was performed three times [18].

Melting Point

The melting point was determined using a Melting Point instrument (Veego, India). Briefly, one end of the capillary tube was sealed; formula is fed from one end into the capillary to a certain height. The capillary is introduced into the melting point apparatus and the temperature at which the molten mass is recorded.

Spreadability Test

Spreadability is determined using a slide. The formulation is sandwiched between two blades and a load is applied; the recipe has been spread on the slides. Visual observations were made regarding the uniformity of the layer formation [19].

For this test, the following criteria have been established:

G – Good: homogenous

I – Moderate homogeneity; leaves few stops

B – Bad: uneven

Sensitive Skin

This is done by applying the product as a patch to the skin for 30 minutes and observing for a reaction of:

N – No reaction

R – Skin redness

I – Irritation or itching

Stability Test

The formulation of the lip balm has been evaluated for stability for 30 days under various temperature conditions mainly room temperature (25±2° C), higher temperatures in the oven (40±2° C) and refrigerator (5±2° C). Characteristics such as organoleptic properties and Spreadability were evaluated on days 7, 15, and 30.

a. Preliminary Stability Test

Formula evaluated on preliminary stability tests including physical properties (color, odor and appearance) and flow testing. Since this formula does not cause any physical or balance changes, it has been tested for normal stability.

b. Normal Stability Study

An amount of 25 g of the substance has been prepared for routine stability testing, where the physical properties (color, odor, and appearance), flowability and the melting point was evaluated for 5 days at room temperature. Samples are well preserved [20].

Results

Sr. No.	Evaluation Parameter	Observation
1	Melting point	64º C – 65º C
2	Organoleptic properties	
2.1	Colour	White
2.2	Odour	Pleasant
2.3	Appearance	Smooth
3	Spreadability	Good
4	pH measurements	6.1
5	Skin Irritation	No

Figure 2: Spreadability of Lip Balm (A) at 25±2° C, (B) at 40±2° C, (C) at 5±2° C

Here's How to Apply Lip Balm for the Best Protection [21]

Step 1: Open the lid of the container. If the balm is in a tube, you only need to lift it about half an inch. If it's in the container, apply a pea-sized amount to your finger.

Step 2: Apply to lower lip. Rub the balm onto your lower lip, along the outside.

Step 3: Apply to upper lip. Rub the balm onto your upper lip, along the outside.

Step 4: Rub your lips together. Rub your upper and lower lips together. This helps distribute the balm evenly throughout your mouth.

How Often Should You Apply Lip Balm? [21]

According to dermatologists, you should only apply lip balm a few times a day. Most experts recommend applying it in the following situations:

1. When you wake up in the morning
2. After eating or drinking
3. When you go to bed at night.

Conclusion

Formulation stored at room temperature and in the refrigerator showed similar stability. Stable organoleptic properties and spreadability are considered "good". Storage of the under these conditions is considered appropriate because the product's functionality is maintained. In the stability test, a lip balm made with natural ingredients had a suitable melting point of (64° C average). According to the spreadability test, furnace storage conditions (40.0±2.0° C) is not recommended due to loss of product functionality compared to normal stability testing. It was concluded that lip balms made from natural ingredients were safe to use and this combination was considered a better choice in creating a lip balm. By changing the excipients or other excipient combinations, can create a new formulation with different and improved qualities. Based on current studies, it is expected that this formula will remain stable.

Reference

1. V.P. Kapoor. Herbal cosmetics for skin and hair care. Natural Product Radiance, 2005, vol. 4, pp. 306-314.
2. P.K. Chattopadhyay. Herbal cosmetic and ayurvedic medicines. National Institute of Industrial Research, 2005, vol. 1, pp. 45-50.
3. Magesh Jain, Shweta Shriwas, Sumeet Dwivedi, Raghvendra Dubey. Design, Development and Characterization of Herbal Lipstick Containing Natural Ingredients. American Journal of Life Science Researches, 2017, 5.2, pp. 36-39.
4. M. Kadu., S. Vishwasrao, S. Singh. Review on natural lip balm. International Journal of Research in Cosmetic Science, 2015, 5.1, pp. 1-7.
5. https://www.britannica.com/science/lips
6. https://www.vectorstock.com/royalty-free-vector/lip-anatomy-15-zones-of-lips-injections-vector-23443669
7. https://www.merckmanuals.com/home/mouth-and-dental-disorders/lip-and-tongue-disorders (Assessed on 30 November 2014)
8. A.R. Fernandes, M.F. Dario, C.A.S.O. Pinto, T.M. Kaneko, A.R. Baby, M.V.R. Velasco. Stability Evaluation of Organic Lip Balm. Braz. J. Pharm. Sci., 2013, vol. 2, p. 49.
9. S.A. Sahar, M. Soltan, M.E.M. Shehata. The effects of using color foods of children on immunity properties and liver, kidney on rats. Food and Nutrition Sciences, 2012, vol. 3, pp. 897-904.

10. P.P. Sharma. Cosmetics- Formulation, manufacturing and quality control (4th ed.). Vandana Publications Pvt. Ltd., India, 2008.
11. B.M. Mittal, R.N. Saha. A Handbook of Cosmetics (1st ed.), Vallabh Prakashan, New Delhi, India, 2000.
12. M.G. Denavarre. The Chemistry and Manufacture of Cosmetics (2nd ed.). Continental Press, Orlando, USA, 1975, pp. 699.
13. A.V. Sharma, P.V. Sharma. Flavouring agents in Pharmaceutical formulations. Ancient Science of Life, 1988, vol. 8, 38-40.
14. B.N. Basha, K. Prakasam, D. Goli. Formulation and evaluation of gel containing fluconazole-antifungal agent. International Journal of Drug Development and Research, 2011, vol. 3, p. 4.
15. M.A. Mundo, O.I. Padilla-Zakour, R.W. Worobo. Growth inhibition of foodborne pathogens and food Spoilage organisms by select raw honeys. International Journal of Food Microbiology, 2004, vol. 97, pp. 1-8.
16. https://en.m.wikipedia.org/wiki/Lip_balm
17. M.S. Balsam, E. Sagarin. Cosmetics Science and Technology (2nd ed.). Wiley Interscience Publication, NY, USA, 2008, pp. 365.
18. Vinodkumar J.A., Chandara G.K., Pradip D.P. Formulation and Evaluation of Organic Lip Balm. Indo. Am. J. Pharm. Res., 2019, 9.4, pp. 1994-1997.
19. Alessandrea R., Michelli F. Stability evaluation of organic lip balm. Int. J. Pharm. Bio. Sci., 2013, pp. 37-41.
20. J.H. Von El Be, S.H. Sy, I.Y. Maing, W.H. Gabelman. Quantitative Analysis of Betacyanins In Red Table Beets (Beta Vulgaris). J. Food Sci., 1972, 37.6, pp. 932-934.
21. Nilofar Shaikh, L.D. Hingane. Formulation and characterization of lip balm from beetroot. IJRTI, 2022, 7.6, pp. 1224-1232.